

GIVENness and local contexts

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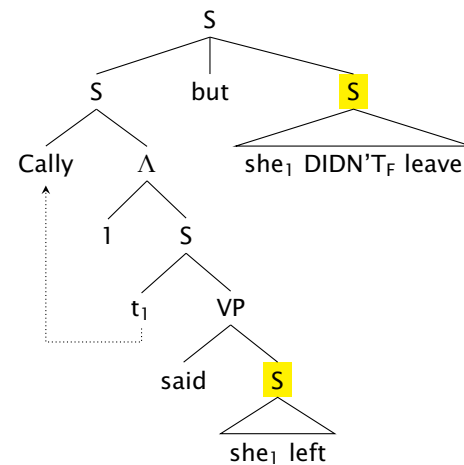
- ▶ GIVENness is checked **compositionally**, via operators in syntax
- ▶ GIVENness is **sensitive to the local context (assignment)**
- ▶ Generally: grammatical constraints like GIVENness must not unbind bound variables. Doing otherwise has paradoxical consequences.

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Upshot: indices matter less for deaccenting/ellipsis than thought. They fix values for variables. But it's the *values* that matter (Jacobson 2009).

- ▶ This dissolves puzzles as old as the ellipsis literature, and helps ground a simpler theory of ellipsis based on *perfect identity*.
- ▶ Sheds new light on impossible ACDs, focused bound pronouns.

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GIVENness and anaphora

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Damian blocked Steph, and then...

- (1) SETH_F blocked Steph.
- (2) $*\text{STEPH}_F$ blocked Damian.
- (3) $*\text{SETH}_F$ blocked STEPH_F .

underfocused

overfocused

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Schwarzschild (1999)

- ▶ **GIVENness:** If B isn't F-marked, it must be GIVEN \rightarrow
- ▶ B is **GIVEN** iff it **has an antecedent** $A \cong B := \llbracket A \rrbracket \in \llbracket B \rrbracket_F$ \rightarrow
- ▶ **AvoidF:** F-mark as little as possible (w/o violating GIVENness) \rightarrow

$\llbracket B \rrbracket_F$ is the focus set gotten by varying F-marked things in B (Rooth 1985, Kratzer 1991)

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F-mark all and only material in B without a correspondent in A :

$\text{Damian blocked Steph} \cong \text{SETH}_F \text{ blocked Steph}$
 $\llbracket \text{Damian blocked Steph} \rrbracket \in \llbracket \text{SETH}_F \text{ blocked Steph} \rrbracket_F$
 $\text{block}(\text{damian}, \text{steph}) \in \{\text{block}(x, \text{steph}) \mid x : e\} \quad \checkmark$

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We need a definition of GIVEN that's explicit about assignments. Here's one possibility (after Heim 1997: 206, cf. Schwarzschild 1999: 152):

$$A \cong B \iff \forall g : \llbracket A \rrbracket^g \in \llbracket B \rrbracket_f^g$$

Occasionally $\exists g$ is entertained (cf. Tomioka 2008, Griffiths 2018).

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This \cong sees indexical differences, even when blurred in a context. That is a problem. Suppose we're in a context where $g(1) = g(2)$.

(4) I saw her₁ and YOU_F saw *HER_{F,2}.

Possible reply: forbid 'Redundant' assignments (Schlenker 2005)?

Or suppose we're in a context where $g(1) = \text{mary}$.

(5) I saw Mary and YOU_F saw *HER_{F,1}.

Possible reply: names are variables? But then we're back to (4).

Schwarzschild 1993, 1999; see also Jacobson 2004, 2009

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Pronoun *meaning in context* is what matters (Schwarzschild 1993, 1999):

$$A \cong B \text{ at } g \iff \llbracket A \rrbracket^g \in \llbracket B \rrbracket_f^g$$

This makes better predictions:

(6) I saw her₁ and YOU_F saw *HER_{F,2}. $g(1) = g(2) \rightsquigarrow$ overfocused

(7) I saw Mary and YOU_F saw *HER_{F,1}. $g(1) = \text{mary} \rightsquigarrow$ overfocused

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Our improved \cong evaluates A and B at the same "global" assignment. So \cong **unbinds variables**, can't distinguish free and bound occurrences.

Even if $g(1) = \text{mary}$, \cong in the yellow, though eventually not the orange.

(8) Newt likes her₁ cat. *CALLY_F [1 t₁ likes her₁ cat] too.

(9) Steph hopes I cite him₁. *SETH_F [1 t₁ hopes YOU_F cite him₁].

Maybe unintuitive... But ok? No: in (10) GIVENness is satisfied, period!

(10) Cally [1 t₁ said she₁ left] but *she₁ DIDN'T_F leave.

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Empirics aside, this is *weird*. Bound variables *have values in their local contexts* (though from the ‘outside’ the idea that they have values may seem strange, cf. Fine 2003). GIVENness shouldn’t ignore these values!

- And def shouldn’t make their values the global-contextual ones

After all, presupposition satisfaction is checked in a local context:

- (11) If there’s an escalator in 18SEM, **the escalator in 18SEM is hidden**.
 (12) Each of these students_{*i*} brought **their_{*i*} laptop**.

If the congruence constraint was a kind of presupposition (as has often been proposed), it would be surprising if it was not also checked ‘in situ’.

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There is an alternative. Rooth’s (1992a) ~ ‘**interprets focus in situ**’, requiring its associate α to be congruent with the value of a variable n :

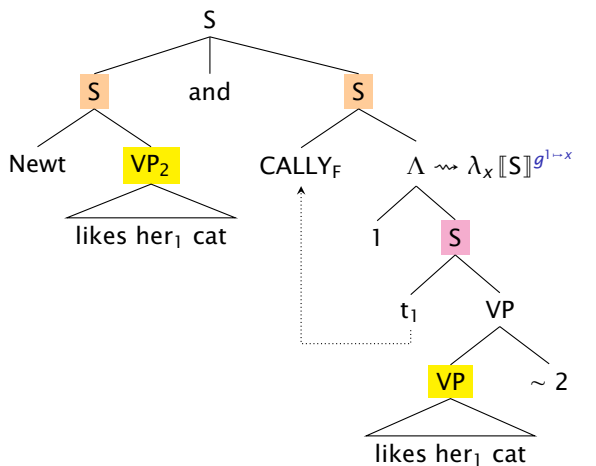
$$\llbracket B \sim n \rrbracket^g := \begin{cases} \llbracket B \rrbracket^g & \text{if } g(n) \in \llbracket B \rrbracket_f^g \\ \text{undefined} & \text{otherwise} \end{cases}$$

B and the $\llbracket A \rrbracket$ stored at n may be eval’d at **different assignments**.

I’m adopting a semantic theory of alternatives for concreteness, but these points apply equally to syntactic theories of alternatives (Katzir 2007, Fox & Katzir 2011).

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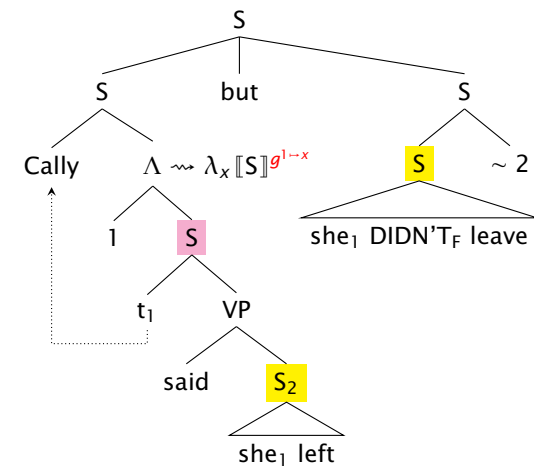
$g(1) = \text{mary}$



$$\llbracket \text{likes her}_1 \text{ cat} \rrbracket^{1 \mapsto \text{mary}} \notin \llbracket \text{likes her}_1 \text{ cat} \rrbracket_f^{1 \mapsto \text{cally}} \quad \#$$

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$g(1) = \text{mary}$



$$\llbracket \text{she}_1 \text{ left} \rrbracket^{1 \mapsto \text{cally}} \notin \llbracket \text{she}_1 \text{ DIDN'T}_F \text{ leave} \rrbracket_f^{1 \mapsto \text{mary}} \quad \#$$

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Updating Schwarzschild (1999)

- ▶ **GIVENness**: If B isn't F-marked, it must be GIVEN \rightarrow
- ▶ B is **GIVEN** iff it **is the sister of** \sim \rightarrow
- ▶ **AvoidF**: F-mark as little as possible (w/o violating GIVENness) \rightarrow

See Büring (2016) for discussion of a very similar system.

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Akan data due to Augustina Owusu (p.c.):

- (13) Kofi re-pa Kwame ho.
Kofi PROG-pass Kwame body
'Kofi is overtaking Kwame'
- Deebi! KWAME na ε -re-pa KOFI ho **no**.
No! Kwame FOC 3SG-PROG-pass Kofi body **DEF**
'No, KWAME is overtaking KOFI.'

No, though usually analyzed as a cross-categorical definite/familiarity marker (cf. Renans 2018 on Ga) can mark clauses that are GIVEN.

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We stand in need of one more revision:

- (14) Steph [1 t_1 liked **his₁ shot**] and SETH_F [2 t_2 liked **his₂ shot**].

We do not need to stress the second *his*. But while the latter orange node is GIVEN, the latter yellow node is **not**. (Very much like 'rebinding'.)

$$\llbracket \text{his}_1 \text{ shot} \rrbracket^{1 \mapsto \text{steph}} \notin \llbracket \text{his}_1 \text{ shot} \rrbracket_f^{2 \mapsto \text{seth}} \#$$

GIVENness must be weakened, on pain of being unsatisfiable:

- ▶ **GIVENness**: If B isn't F-marked, it must be GIVEN, **or dominated by a node that is GIVEN** \rightarrow

This is a new argument for something similar to "Maximize Background".

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The basic patterns are reproduced with indexical expressions:

- (15) (I'm the best.) No, I_F am!
(16) (I ran a marathon.) Yes, you did.

But there is a striking disanalogy in *index-dependency*:

- (17) In '92 the Potus was a Bush. #In '04 [the POTUS]_F was a Bush.

GIVENness relates *meanings* via \sim . We've seen ample evidence that the meanings of pronouns (indexicals) saturate the assignment (context).

Data like (17) suggest the *meaning* of the DD doesn't saturate the index:

$$\llbracket \alpha \rrbracket^{c,g} = \dots \lambda_{(w,t)} \dots \quad \text{not} \quad \llbracket \alpha \rrbracket^{c,g,(w,t)} = \dots$$

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A better theory of ellipsis

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Ellipsis requires identity.

(18) I saw an elk from France. Did YOU_F (see an elk from France)?

(19) I saw her, but YOU_F DIDN'T_F (see her).

Sloppy readings are easy to accommodate:

(20) Mary [$\lambda_i t_i$ likes her_{*i*} office], but SUE_F DOESN'T_F ($\lambda_j t_j$ like her_{*j*} office).

Sag characterized *A* and *E* here as 'alphabetic variants', a relation inspired by the λ -calculus notion of α -equivalence (though distinct).

Keenan (1971), Sag (1976), Williams (1977)

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Sloppy pronouns don't need to be bound inside *E* ('**rebinding**')

(21) John_{*i*}'s mom likes him_{*i*}. BILL_{F,*j*}'s mom DOESN'T_F (like him_{*j*}).

(22) Bagels_{*i*} [I like t_{*i*}]. DONUTS_{F,*j*} [I DON'T_F (like t_{*j*})].

(23) Every dog_{*i*} thinks I like it_{*i*}. Every CAT_{F,*j*} thinks I DON'T_F (like it_{*j*}).

(24) If I see a cat_{*i*} I pet it_{*i*}. If I see a DOG_{F,*j*} I DON'T_F (pet it_{*j*}).

Same range of interpretations available under deaccenting.

See Hirschbühler 1982, Evans 1988, Jacobson 1992, Rooth 1992b, Hardt 1993, Fiengo & May 1994, Tomioka 1999, Takahashi & Fox 2005, and many others.

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Two-part theory of ellipsis licensing

(Rooth 1992b)

Ellipsis is licensed whenever the following two conditions are satisfied:

- ▶ Syntactic: $A \approx E$ Syntactic identity **up to variable names**
- ▶ Semantic: $\Gamma[A] \cong \Delta[E]$ *A* and *E* are (in) **congruent** structures

Note that \cong is the **ex situ** congruence relation.

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John₁ [t₁ likes his₁ mom] \cong BILL_{F,2} [t₂ does (like his₂ mom)]
 likes(j, mom(j)) \in {likes(x, mom(x)) | x : e}

John₁ [t₁ mom likes him₁] \cong BILL_{F,2} [t₂ mom does (like him₂)]
 likes(mom(j), j) \in {likes(mom(x), x) | x : e}

Binding in the elliptical clause guarantees that congruence is satisfied.

In general, the interaction of binding and alternatives creates complications (Poesio 1996, Shan 2004, Romero & Novel 2013, Charlow 2018). This won't affect any of my points.

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Hard to oversell how successful, illuminating this approach has been.

- Congruence is a feature of grammar not specific to ellipsis (Schwarzschild 1999, Buring 2016, cf. Tancredi 1992, Fox 1999).

The syntactic condition is unfortunate (e.g., Merchant 2001). There are reasons to think the ellipsis-specific identity relation is *exact*.

Something akin to congruence is present even in dissenters from the overall Roothian picture (e.g., Merchant 2001, Kehler 2000, building on Hobbs 1979).

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Why not just coindex the sloppy pronoun and its correlate in A?

Mary₁ [t₁ likes her₁ office] \cong SUE_{F,1} [t₁ does (like her₁ office)]
 likes(m, office(m)) \in {likes(x, office(x)) | x : e}

Actually, this needs to be *ruled out*:

(25) Newt likes her₁ cat and CALLY_F [t₁ does (like her₁ cat)] too.

(26) Steph hopes I cite him₁ and SETH_F [t₁ hopes YOU_F (cite him₁)].

(27) Cally [t₁ said she₁ left] but she₁ DIDN'T_F (leave).

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No Meaningless Coindexing (NMC) (Heim 1997: 202)

If an LF contains an occurrence of a variable v that is bound by a node α , then all occurrences of v in this LF must be bound by the same node α .

Sag defined a context-sensitive sense of 'alphabetic variance' distinct from the λ -calculus notion, to similar effect.

Sag 1976, Tomioka 1995, Romero 1998, Sauerland 1998, 2004, Kennedy 2004, 2014, Takahashi & Fox 2005, Takahashi 2006, Hartman 2011, Roelofsen 2011, Crnič 2017.

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Consider what's implied by NMC and prohibitions on Redundancy:

- ▶ NMC: multiple referents imply multiple indices
- ▶ No Redundancy: multiple indices imply multiple referents

Together this entails indices are in 1-1 correspondence with referents. But then clearly it's the referents that matter, not the indices!

The in situ characterization of GIVENness models this well.

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The difficulties here are entirely due to using an **ex situ** \cong .

They vanish with an in situ congruence mechanism, e.g., \sim . The LFs generating impossible readings cannot satisfy \sim .

(28) Newt **likes her₁ cat** and CALLY_F [1 t₁ does # **(like her₁ cat)**] too.

(29) Al **hopes I cite him₁** and BO_F [1 t₁ # **hopes YOU_F (cite him₁)**].

(30) Cally [1 t₁ said **she₁ left**] but # **she₁ DIDN'T_F (leave)**.

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Getting rid of NMC means we can require exact identity in ellipsis,

(31) **John_i's mom likes him_i**. **BILL_{F,i}'s mom DOESN'T_F (like him_i)**.

Why might we want this? Ellipsis *sites* exhibit variable-like behavior.

(32) When John has to **cook**, he doesn't **want to** (cook).

When he has to **CLEAN**, he doesn't (want to clean) either.

(33) John bought the books₁ he was **supposed to** (buy t₁).

But he **READ** the books₂ he **WASN'T** (supposed to read t₂).

Strongly suggests that an anaphora-like process undergirds ellipsis resolution But anaphora is a relation based on *exact identity* (of meaning).

Gardent (1991), Hardt (1994, 1999), Schwarz (2000), Tomioka (2008), Elbourne (2008).

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The dynamics of \sim

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What does it mean for A_n , the antecedent of $B \sim n$, to bear an index?

- ▶ Could mean A_n binds $B \sim n$
- ▶ Could mean the two are merely coreferential

Treating B's GIVENness in situ via \sim *speaks in favor of binding*.

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Intuitively the second conjunct counts as GIVEN in light of the first:

(34) Every boy₁ said [Seth likes him₁]₂ and [STEPH_F likes him₁] \sim 2.

Yet this is impossible if \sim and its 'antecedent' are merely coreferential. That requires there to be a contextual value for 2 such that, for any boy x :

$$g(2) \in \{\text{like}(y, x) \mid y : e\}$$

The focus set varies with x ! No single value for $g(2)$ can do all this work. [At best, $g(2)$ will be 'about' one of the relevant boys.]

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If *Seth likes him₁* **binds** \sim 2, the value of 2 shifts boy-by-boy:

every boy [1 ... [Seth likes him₁] [λ_2 t₂ and [STEPH_F likes him₁] \sim 2]]

a likes(sets, a) $g(2) \in \{\text{likes}(x, a) \mid x : e\}$ ✓

b likes(sets, b) $g(2) \in \{\text{likes}(x, b) \mid x : e\}$ ✓

c likes(sets, c) $g(2) \in \{\text{likes}(x, c) \mid x : e\}$ ✓

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GIVENness/ \sim are often said to be *anaphoric* (Rooth 1992a, 2016, Schwarzschild 1999). Treating \sim in situ forces us to take this seriously.

The occurrences of \sim in (35) and (36) are *donkey pro-forms*.

(35) If [a cat₆ [Mary likes t₆]₅] you can bet that [SUE_F LOVES_F it₆] \sim 5

(36) If [[the copier or the fax]₇ [you use t₇]₈] [I_F CAN'T_F (use it₇)] \sim 8

So \sim participates in the same binding configs as pronouns (Partee 1973). A complete account will model \sim dynamically (Charlow 2012, 2015).

See also Rooth & Partee 1982, Stone 1992, Fiengo & May 1994

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Kicking the tires

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On the other hand, whereas binding seems sensitive to linearity (roughly), it's well known that \sim satisfaction can be cataphoric (Rooth 1992a):

(37) An AMERICAN_F farmer was talking to a CANADIAN_F farmer.

Brasoveanu & Szabolcsi (2013) argue that this shows \sim imposes itself *after* the sentence has been composed — i.e., is 'post-suppositional'.

(38) A-mo hashitta. 'A ran away too'

(39) A-mo B-mo hashitta. 'A and B ran away'

38

To get a flavor for post-suppositions, let's consider a paradigm use-case: marking dependent interpretations (Henderson 2014, Law 2018).

(40) Every boy saw a movie. Some even enjoyed it.

(41) Every boy saw a-RED movie. (Requires multiple movies seen.)

The context reflects the dependency between boys and movies seen:

b ₁	m ₁	} 3 assignments
b ₂	m ₂	
b ₃	m ₃	

This dependency can be anaphorically retrieved as in (40), or required to **post-suppositionally** yield multiple movies, as in (41).

See van den Berg 1996, Nouwen 2003, Brasoveanu 2007 on plural dynamic semantics

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(42) I saw t_i [the man YOU_F did (see t_j)]_i.

(43) I saw t_i [a book about the man YOU_F did (*see t_j)]_i.

Kennedy 1994, 2014, Sauerland 1998, 2004, Fox 2002, Jacobson 2000, 2004, 2009

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Heim (1997) proposes to explain the data as a failure of \cong .

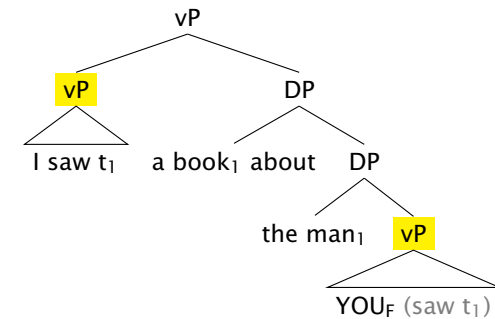
(44) [I saw t_i]_n [the man_i [YOU_F did (see t_i)] $\sim n$].

(45) [I saw t_i]_n [a book_i about the man_j [YOU_F did (*see t_j)] $\sim n$].

I saw $t_i \not\cong$ YOU_F saw t_j , whence the ungrammaticality of (45).

Relies on NMC to avoid spurious \cong satisfaction.

41

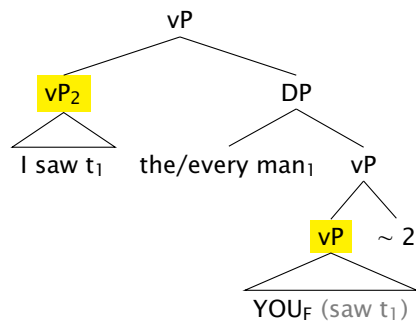


There is no way for \sim to relate the vPs, even with coindexing: the first trace evaluates to a book; the second trace evaluates to a man.

Jacobson (2004, 2009) argues something very similar within a variable-free system.

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But how is \sim satisfied in the *good* cases? A configuration like the one below looks good at first, but remember that ~ 2 needs be bound!



The DP necessarily binds into vP₂. How can vP₂ bind ~ 2 ?

See Koster-Moeller & Hackl 2008 for some of the complexities of using \sim in ACD.

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Recall from earlier that \sim satisfaction can be symmetric. As Brasoveanu & Szabolcsi argue, this suggests that \sim satisfaction is post-suppositional.

(46) An AMERICAN_F farmer was talking to a CANADIAN_F farmer.

(47) A-mo B-mo hashitta. 'A and B ran away'

Notably anticipatory stress is common (obligatory?) in ACD:

(48) I_F read everything YOU_F did.

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$\underbrace{[\text{John read } t_1]}_2 \underbrace{[\text{everything}^1 \text{ MARY}_F \text{ did (read } t_1)]}_{2\sim 3}$

a	read(j, a)	{read(x, a) x : e}	✓
b	read(j, b)	{read(x, b) x : e}	✓
c	read(j, c)	{read(x, c) x : e}	✓

Should ~ distributively require satisfaction in every row (assignment), or would something weaker be appropriate? The weaker notion could be consistent with the head-identity effects noted by Sauerland (1998, 2004).

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(49) Every third grade boy likes his mom.
And every FOURTH_F grade boy likes his mom.

(50) Every third grade boy likes his mom.
And every FOURTH_F grade boy likes HIS_F mom.

Sauerland (1998, 2000), Jacobson (2000), Dimitriadis (2001), Mayr (2012)

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What is the focused bound pronoun contrasting with?

In light of the non-focused variant, why isn't this overfocusing?

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$\underbrace{\text{Every TGB}^1 [t_1 \text{ likes his}_1 \text{ mom}]}_2 \underbrace{\text{Every FGB}_F^3 [t_3 \text{ likes HIS}_{F,3} \text{ mom}]}_{2\sim 4}$

a	mom a	d	{mom d, mom a, ...}	✓
b	mom b	e	{mom e, mom b, ...}	✓
c	mom c	f	{mom f, mom c, ...}	✓
...

$\underbrace{\text{Every TGB}^1 [t_1 \text{ likes his}_1 \text{ mom}]}_2 \underbrace{\text{Every FGB}_F^3 [t_3 \text{ likes his}_3 \text{ mom}]}_{2\sim 4}$

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Wrapping up

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Congruence is a compositional, anaphoric, dynamic process.

Indices matter a lot less for ellipsis and deaccenting than thought. They help determine values for variables. But it's the *values* that are important.

Facilitates big simplifications in grammar (e.g., no NMC), potential for exact-identity-oriented theories of ellipsis (at last!), and offers a fresh perspective on some old facts.

50

Thank you for listening

51

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